

# Assignment No.4

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Download latex-tikz codes from

<https://github.com/Panisha707/ASSIGNMENT04/blob/main/main.tex>

Download python codes from

<https://github.com/Panisha707/ASSIGNMENT04/blob/main/untitled26.py>

Question taken from

linear\_form, exercises 2.3,i,j

Graphs of the equations (a) and (b) are constructed by using python as

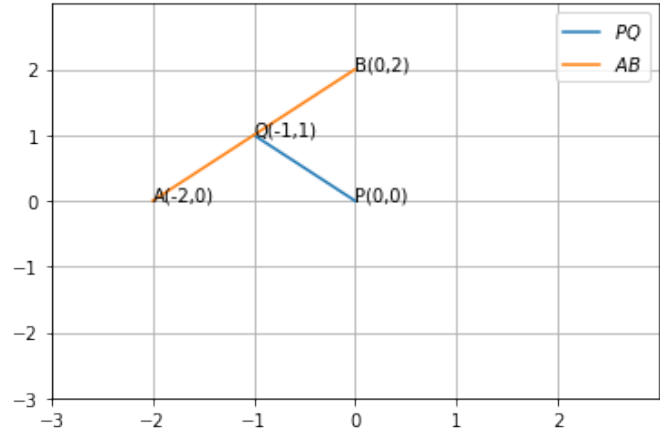


Fig. 2.1: Graphs of Equations (a) and (b)

## 1 QUESTION No 1

Draw the graphs of the following equations

$$a) \begin{pmatrix} 1 & 1 \end{pmatrix} \mathbf{x} = 0 \quad (1.0.1)$$

$$b) \begin{pmatrix} 1 & -1 \end{pmatrix} \mathbf{x} = -2 \quad (1.0.2)$$

## 2 SOLUTION

a) there is no constant in the line equation thus it passes through the origin

put  $\mathbf{x} = \begin{pmatrix} -1 \\ y \end{pmatrix}$  in equation

$$\mathbf{P} = \begin{pmatrix} 0 \\ 0 \end{pmatrix}, \mathbf{Q} = \begin{pmatrix} -1 \\ 1 \end{pmatrix} \quad (2.0.1)$$

b) put  $\mathbf{x} = \begin{pmatrix} x \\ 0 \end{pmatrix}$

$$\begin{pmatrix} 1 & -1 \end{pmatrix} \begin{pmatrix} x \\ 0 \end{pmatrix} = -2 \quad (2.0.2)$$

$$\Rightarrow x = -2 \quad (2.0.3)$$

put  $\mathbf{x} = \begin{pmatrix} 0 \\ y \end{pmatrix}$

$$\begin{pmatrix} 1 & -1 \end{pmatrix} \begin{pmatrix} 0 \\ y \end{pmatrix} = -2 \quad (2.0.4)$$

$$\Rightarrow y = 2 \quad (2.0.5)$$

$$\mathbf{A} = \begin{pmatrix} -2 \\ 0 \end{pmatrix}, \mathbf{B} = \begin{pmatrix} 0 \\ 2 \end{pmatrix} \quad (2.0.6)$$